WE WOULDN'T

We wouldn't want everything velvet—just as life is, it is fine.
We wouldn't want everything sugar—just a bit of the tart in our wine.

Just a bit of the light and the shadow, a well-balanced ration of things.
It's often the trial and the tempest as much as the sweetness that sings.

We wouldn't want everything perfect—lots of us keep up our grit
By finding fault with the country; it helps to sharpen the wit.

We wouldn't want everything roses, and never the prick of the thorn;
There wouldn't be much incentive to rise at the call of the morn.

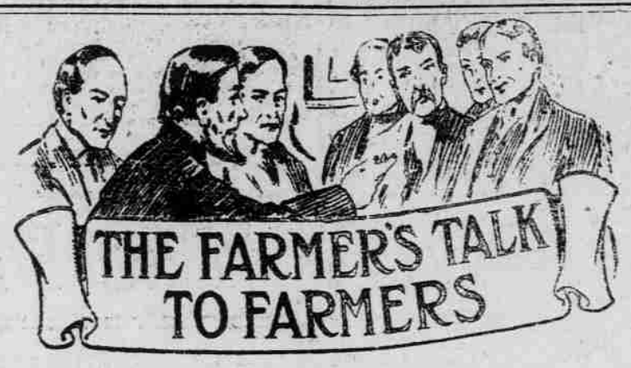
We wouldn't want everything easy—God's secret is giving us here
A burden of care and contention—but sweet are the wages of cheer.

—From the Baltimore Sun.

BOZRAH

The Woman's Foreign Missionary society of the Congregational church held its November meeting at the home of Mrs. Jabez Bailey, Yantic, Saturday afternoon, the 26th. Mrs. Dickson H. Leavens of the Yale China Mission gave a very interesting talk and exhibited many curios, also work done by Chinese women.

Oscar Heinrich, of the Manhattan, Co., will sing at the Congregational church Sunday morning next. Rev. C. W. Hanna will speak on "Pilgrims and Sojourners."



SUGGESTED PLAN FOR SELLING THE BACTERIA TO WORK FOR US

(Written Specially For The Bulletin.)

Last week we talked about the economic impossibility of renewing the nitrates of the soil either by importing Chilean nitrate of soda or by electrically decomposing the air to get them. We came to the conclusion that the only adequate, permanent and economical source of nitrate supply was in the way nature has pointed out—the way nature has been producing it for untold thousands of years, viz., by the work of soil bacteria. We came to this conclusion, not because we particularly wanted to, but because we had to just as soon as the real facts relating to the subject were before us.

Today, let's consider potash and phosphorus, two fertilizer elements of comparable importance.

While the nitrates which are found in virgin soil have been due to the work of bacteria in sifting them out of the air, the potash in similar soils has usually been derived from the decomposition of rocks. How it got into the original rocks is another story and of slight bearing on the present discussion. Enough to say that they are full of it and, as they have been worn or ground or rotted into soil, the imprisoned potash has been released to become an essential constituent of that soil. Says one authority:

"Potassium is a very common element. Only seven others are more abundant. There is more potash in the crust of the earth than there is water upon it."

All forms of rock known to the United States are well supplied with potash, excepting only the coral rock of the Florida and Gulf coasts. Repeated analyses show such figures as the following for the potash content per acre of the upper seven inches of soil:

Soils derived from gneiss or granite 22,200 pounds; soils derived from Connecticut river sandstones 46,000 pounds; soils derived from limestone 40,000 to 51,800 pounds; soils derived from shale 46,000 pounds; soils derived from various older sandstones 51,200 to 57,400 pounds. Don't forget that this means the amount of pure potash—not sulphate or muriate—in just the upper seven inches of plow-dirt on each acre. The figures are mighty reassuring to any farmer who is inclined to wonder what he can do next time the German supply of potash is cut off. About the only soils in the United States which are deficient in it are the Everglades of Florida, the Dismal Swamp of Virginia, and rare patches of peaty swamp land in other localities.

Now as to phosphorus. Striking a broad average, it may be said that virgin soils contain about 2,000 pounds of phosphorus to the acre, seven inches deep. An average crop takes out from this reserve about twelve pounds a year. There is less than enough for two hundred years' supply, you'll observe. Much land in the eastern parts of the country has been cropped steadily for as one as that.

The perfectly natural thing has happends on these old soils. Both the chemist and the farmer have discovered it. Having robbed and starved them at the same time for six generations, we farmers now try to sneak out of our own responsibility by saying that they are "worn out." In proof of the fact that they have become practically useless we, in the ten years between 1900 and 1910, abandoned 2,350,000 acres of them in New England, New York, New Jersey and Pennsylvania alone.

Chemists who have analyzed them have found that the original reserve of 2,000 pounds per acre has, in many cases, been reduced to as little as 150 pounds per acre, and that in the least available forms. Both science and practical farming therefore are agreed as to the deplorable result.

The remedy, so far as at present understood, consists simply in the restoration of phosphates to the phosphorus-lacking soils. Fortunately for us of the United States, we have in our own phosphate mines a visible supply of approximately 10,000 pounds of rock phosphate for every cultivated acre. That is, they promise a supply about five times greater than the original stock. Evidently, there is no danger of any immediate phosphate famine.

But we've got to change our phosphate policy, for all that. Hitherto, we've been using mostly acid phosphate. Now, acid phosphate is simply a mixture of one ton of sulphuric acid with one ton of rock phosphate. There are 280 pounds of phosphorus in a ton of the rock. Of course, there is no more in the two tons of acid phosphate which is made by adding a ton of acid to the ton of rock. It follows that the acid phosphate has only just half as much phosphorus in it, per ton, as the raw rock. Yet the cost of the acid and the manufacture combine to make it much higher-priced, per ton, than the raw rock.

The farmer pays more for 140 pounds of phosphorus in a ton of acid phosphate than for 280 pounds in a ton of raw rock.

The only excuse for this wastefulness of money and fertilizer has been that the acid rendered the phosphate more immediately available.

Yet hundreds of experiments and thousands of practical farm tests in the last dozen years have established the fact beyond cavil that the raw rock, if only it is ground finely, is as effective as the acidulated rock. Not only have experimental trials in this country and England indicated this, but practical farmers on hundreds of farms in the west and scores of farms right here in Connecticut have proved it. As one expert puts it, the discovery that phosphate rock could be dissolved was a benefaction, at the time, but the later discovery that it can be ground so fine "that the farmer can do his own acidulating in the soil" is of even greater importance.

Drive a nail in, right there, if you please. For this is where we hang up another tribute to the work of bacteria. The farmer doesn't "do his own acidulating." Not by a long shot. It is those same bacteria which do it for him. "In his own soil," of course, not in any big manufacturing plant with acid made out of pyrites imported from Spain. Without any charges for freights or commission or wages, either.

Prof. Eaten thus summarizes the new Declaration of Independence which he and his "Independent Fertility Field" have conjoined to submit to the farming world:

"We make the bacteria do most of the fertilizing.

"In the first place, they manufacture the nitrates.

"In the second place, they manufacture the potash from the rock minerals.

"In the third place, they manufacture the potash from the rock minerals.

"In the fourth place, they furnish the material to build up organic matter.

"Their fifth function is to convert dead residues into plant foods.

"Soil bacteria were doing all these things long before man appeared on the scene. Why not speed up their activity for the benefit of humanity?"

It has long been known that the bacteria in the nodules on the roots of certain leguminous plants manufactured nitrates for plantfood out of the superabundant reservoirs of the air. Note, now, the second and third items in that new Declaration of Agricultural Independence. They also manufacture plant-food potash out of the crude mineral existing already in the soil in practically inexhaustible quantity, and plant-food phosphates out of the raw rock which you can supply them for half the cost of pre-digested acid phosphate.

As the professor says, they've been doing this very thing for untold ages. They're just as ready to do it now, as they were before the first farmer dragged a crooked stick across the dirt and called it plowing. Hitherto the farmer has ignored them because he really knew nothing about them. Now he not only knows what they have done but also what he can get them to do for him today and tomorrow and for all the future.

You'll agree, I think, that we've pretty well gone over the underlying facts and the controlling principles of this new agriculture. How about its practical application? How should one go at it who has no capital to risk but who would like to see for himself, at trifling cost, what the whole thing amounts to?

Assuming that it is a pretty well worn-out field which you'd be glad to restore to productivity, but can't afford either farm manure or commercial fertilizer in adequate supply, just exactly how should you go to work to make the bacteria do it for you? Here is a suggested plan in minute detail for a non-livestock farm:

First Year: Get a quart of soy bean seed, preferably Medium Green, and the required amount of bacteria inoculation (usually advertised in most farm papers). Plow thoroughly; harrow well. Mark in rows 26 inches apart. Drop the inoculated seed two inches apart. Later, thin out to four inches. Examine some of the roots during the summer; if they show nodules the experiment will be successful. In fall, when the leaves have fallen from the vines, harvest, dry and thresh for next season's seed. This plot is to furnish inoculation for other soys in the future, as well as seed.

Second Year: Plow your field, add about one ton of ground raw phosphate to the acre; harrow in well; mark as before; dribble dirt from last year's inoculated bean patch along the rows, and plant the seed as before, covering quickly and about two inches deep. Don't let the sun shine on the bacteria dirt to kill the bacteria. When the leaves begin to drop, in September, cut the whole crop into the soil with a good harrowing—only taking care to save enough seed for another time.

Third Year: Plow again; apply another ton-to-the-acre dressing of raw ground phosphate and a ton of ground limestone; harrow in; plant any crop desired and WATCH IT GROW!

Fourth Year: The same as the third, except that every other year you want to put on the soy beans. A practical way to do this without losing the use of the field for the season, is to plant the soy beans with corn, plowing them and the corn stubble in during the fall.

When any plant is once thoroughly inoculated with soy bean bacteria the soil from that plat will serve, the succeeding year, as inoculation for any other plat of soy beans.

If the land is seriously deficient in humus the use of some stable manure for a year or two will help. And all the weeds and crop wastes should be regularly plowed under to maintain the humus content of the soil.

THE FARMER.

Hartford.—Mr. and Mrs. Henry Seymour Robinson and Miss Elizabeth Trumbull Robinson will be "at home" Friday afternoon, Dec. 9, from 4 until 6 o'clock, at No. 132 Woodland street. Miss Robinson will be introduced at a dance at the Hartford Golf club in the evening. She is to be the first debutante of this season.